Automated Semantic Enrichment for Data Discovery and Decision Support, Phase II

Completed Technology Project (2013 - 2015)

Project Introduction

The objective of this proposal is to demonstrate a set of methods for automatically extracting metadata from diverse data sets to serve as a common vocabulary by which data can easily be queried, retrieved and combined for visualization in a geobrowser. We propose extracting keyword tags from both structured and unstructured data sets by applying natural language processing (NLP) to metadata and unstructured content. The extracted tags will be associated with each data set as supplementary metadata to assist with data discovery, categorization and spatial-temporal location. We combine manually-generated tags, based on domains of interest or specific decision support activities, with automatically generated tags from NLP, and to develop hierarchical clusters of the combined tags to serve as a common set of descriptors by which different data sets can be discovered and combined. If proven successful, our approach will be useful for the management and fusion of very large and diverse data sets not only for applied science and decision support, but also for emergency management and related security operations, for business intelligence, and for other application involving large quantities of diverse data, both structured and unstructured.

Primary U.S. Work Locations and Key Partners
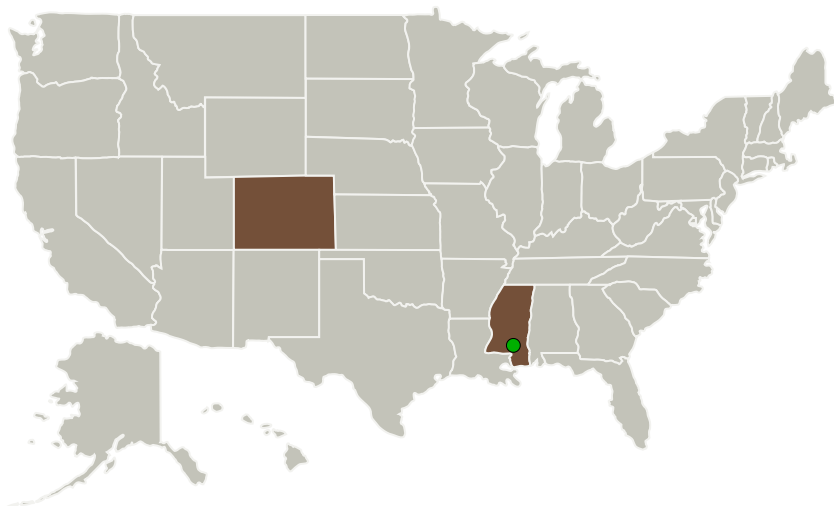
Automated Semantic Enrichment for Data Discovery and Decision Support Project Image

Table of Contents

Automated Semantic Enrichment for Data Discovery and Decision Support, Phase II

Completed Technology Project (2013 - 2015)

Organizations Performing Work	Role	Type	Location
GeoVisual Technologies Inc.	Lead Organization	Industry	Boulder, Colorado
🟢Stennis Space Center(SSC)	Supporting Organization	NASA Center	Stennis Space Center, Mississippi

Primary U.S. Work Locations	
Colorado	Mississippi

Project Transitions

▶ **July 2013:** Project Start

✅ **September 2015:** Closed out

    Closeout Documentation:
- Final Summary Chart*(https://techport.nasa.gov/file/137334)*

Images

Project Image
Automated Semantic Enrichment for Data Discovery and Decision Support Project Image
(https://techport.nasa.gov/imag e/133157)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

GeoVisual Technologies Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

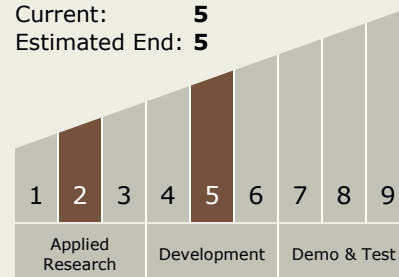**Principal Investigator:**

Jeffrey Orrey

Co-Investigator:

Jeffrey Orrey

Technology Maturity (TRL)

Start: **2**
Current: **5**
Estimated End: **5**

1	2	3	4	5	6	7	8	9
Applied Research			Development			Demo & Test		

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  └ TX11.4 Information Processing
    └ TX11.4.3 Semantic Technologies

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System

Tech Port

Printed on 12/06/2022
11:04 PM UTC

For more information and an accessible alternative, please visit:
https://techport.nasa.gov/view/16735

Page 3